

of zinc and platina plates (748). A similarly feeble current passed in every case, and even when only one exciting pair and four intervening platina plates were used, fig. 58, a current passed which could be detected at x, both by chemical action on the solution of iodide of potassium, and by the galvanometer. This current I believe to be due to electricity reduced in intensity below the point requisite for the decomposition of water (705, 719); for water can conduct electricity of such low intensity by the same kind of power which it possesses in common with metals and charcoal, though it cannot conduct electricity of higher intensity without suffering decomposition, and then opposing a new force consequent thereon. With an electric current of, or under this intensity, it is probable that increasing the number of interposed platina plates would not involve an increased difficulty of conduction.

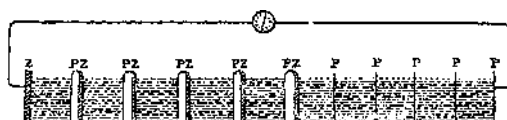


Fig- 59-

754. In order to obtain an idea of the additional interfering power of each added platina plate, six voltaic pairs and four intervening platinas were arranged as in fig. 59; a very feeble current then passed (720, 753). When one of the platinas was removed so that three intervened, a current somewhat stronger passed. With two intervening platinas a still stronger current passed; and with only one intervening platina a very fair current was obtained. But the effect of the successive plates, taken in the order of their interposition, was very different, as might be expected; for the first retarded the current more powerfully than the second, and the second more than the third.

755. In these experiments both amalgamated and unamalgamated zinc were used, but the results generally were the same.

756. The effects of retardation just described were altered altogether when changes were made in the *nature of the liquid* used between the plates, either in what may be called the *exciting* or the *retarding* cells. Thus, retaining the exciting-force the same, by still using pure dilute

sulphuric acid for that